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OKLAHOMA BUSINESS BULLETIN

CENTER FOR ECONOMIC AND MANAGEMENT RESEARCH
COLLEGE OF BUSINESS ADMINISTRATION
THE UNIVERSITY OF OKLAHOMA

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The *Oklahoma Business Bulletin* is now combined with the *Review of Regional Economics and Business*. There will be four quarterly expanded editions of the *Bulletin* which will contain both articles and the usual statistical information on Oklahoma and its major centers. The remaining eight monthly issues of the *Bulletin* will contain only the statistical summaries, although articles on timely subjects might also appear in these inter-quarterly issues. The combination of these two publications will provide a more thorough examination of economic problems prevalent in Oklahoma as well as continuing to provide economic data which has long been presented in the *Oklahoma Business Bulletin*.

This publication change at the Center has been assisted by funding provided by the Robert S. and Grayce B. Kerr Foundation Inc., for which the Center is most grateful.

We at the Center are most hopeful that the Oklahoma oriented articles will assist State leaders and citizens in their efforts to solve the economic problems now facing the State.

George W. England
Director

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SUMMARY OF INDICATORS

Category	9 Mos. '87	9 Mos. '86	Sept. '87	Percentage Change 9 Mos. '87/'86	Percentage Change Sept./Aug. '87
Personal Income (Monthly Average)					
Unadjusted ($000,000)	3,436	3,386	3,504	1.5	0.7
Adjusted for CPI ($000,000)	1,015	1,033	1,017	-1.7	0.2
Crude Oil Production (000 bbl)[a]	89,109	99,675	10,939	-9.6	-1.2
Industrial Power Sales (000,000 Kwh)[b]	6,140	6,106	727	0.6	0.3
Total Bank Deposits ($000,000)[c]					
Demand	7,520	7,402	7,633	1.6	1.4
Savings	25,550	26,479	24,956	-3.5	-1.7
Savings and Loan Associations ($000,000)					
Assets	10,006.6	10,044.5	10,167.3	-0.4	0.3
Mortgage Loans Closed	740.8	1,115.5	61.3	-33.6	-26.8
General Business Index	93.7	90.8	94.6	3.2	0.7

Note: Includes revisions.
[a]8 months and August data.
[b]Sales of larger privately owned utility companies.
[c]Total deposits of all depository institutions.

SELECTED ECONOMIC INDICATORS

Category	9 Mos. '87	9 Mos. '86	Sept. '87	Percentage Change 9 Mos. '87/'86	Percentage Change Sept./Aug. '87
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	260,482	273,232	26,197	-4.7	1.2
Number of Units	3,917	4,459	379	-12.2	-3.8
Residential—Multi Family					
Dollar Value ($000)	18,058	67,965	0	-73.4	—
Number of Units	759	2,108	0	-64.0	—
Nonresidential					
Commercial ($000)	138,532	106,564	15,396	30.0	-40.4
Industrial ($000)	13,333	15,355	241	-13.2	-74.4
Institutional ($000)	35,388	42,081	4,640	-15.9	-18.7
Nonbuilding					
Streets and Highways ($000)	128,329	128,120	24,877	0.2	83.0
All Other Nonbuilding ($000)	8,511	8,772	611	-3.0	-32.4
Total Construction ($000)	602,633	642,090	71,962	-6.1	-5.1
EMPLOYMENT TRENDS					
Total Labor Force (000)[a]	1,563.8	1,594.6	1,539.7	-1.9	-0.9
Total Employment (000)	1,445.1	1,462.7	1,447.7	-1.2	-0.3
Agriculture (000)	38.1	47.2	34.7	-19.3	-16.4
Nonagriculture (000)	1,407.7	1,415.5	1,419.4	-0.6	0.6
Manufacturing (000)	158.4	163.8	158.5	-3.3	-0.4
Mining (000)	53.2	55.9	54.5	-4.8	0.9
Government (000)	249.8	249.2	246.3	0.2	4.1
Contract Construction (000)	39.7	41.1	40.4	-3.5	-1.9
Services (000)	226.9	224.4	230.2	1.1	0.3
Retail Trade (000)	213.5	216.0	213.7	-1.2	0.2
Unemployment Rate (%)	7.6	8.3	6.0	—	—
Average Weekly Hours					
Manufacturing (Per Worker)	41.1	41.0	41.0	0.2	-1.0
Average Weekly Earnings					
Manufacturing ($ Per Worker)	411.68	402.82	420.66	2.2	0.0
Contract Construction ($ Per Worker)	428.18	404.82	423.38	5.8	-5.7
Retail Trade Excluding Eating and Drinking Places($ Per Worker)	191.96	189.70	197.47	1.2	1.4

Note: Includes revisions.
[a]Civilian Labor Force.

RETAIL TRADE IN METRO AREAS AND STATE
($000)

Retail Trade	9 Mos. '87 Adjusted	9 Mos. '86 Adjusted	Sept. '87 Adjusted	Sept. '87 Unadjusted	Percentage Change 9 Mos. '87/'86 Adjusted	Percentage Change Sept./Aug. '87 Adjusted	Percentage Change Sept./Aug. '87 Unadjusted
OKLAHOMA CITY MSA							
Food	1,671,855	1,691,494	191,628	191,583	-1.2	4.5	0.7
Apparel	133,528	142,700	13,452	13,331	-6.4	-5.3	-0.1
General Merchandise	524,992	542,951	60,192	53,407	-3.3	0.2	-11.7
Furniture	213,218	205,299	22,805	22,854	3.9	-2.8	-6.9
Lumber	126,860	151,100	14,787	15,326	-16.0	7.4	-0.4
Auto Dealers	1,201,175	1,352,143	122,091	117,388	-11.2	-20.7	-12.9
Service Stations	154,854	165,795	17,405	18,070	-6.6	-3.9	-9.9
All Other	517,847	511,197	63,327	56,182	1.3	-2.6	-11.1
Total	4,544,329	4,762,679	505,687	488,141	-4.6	-4.9	-6.5
TULSA MSA							
Food	991,742	1,015,854	111,129	108,424	-2.4	3.2	-1.5
Apparel	126,811	127,992	14,888	13,860	-0.9	-0.2	-8.4
General Merchandise	429,697	429,314	50,370	46,498	0.1	2.7	-7.4
Furniture	170,069	179,272	19,746	19,258	-5.1	3.7	9.4
Lumber	103,814	122,178	11,698	11,924	-15.0	8.3	1.7
Auto Dealers	698,897	786,734	71,037	68,301	-11.2	-20.7	-12.9
Service Stations	127,214	136,217	14,298	14,845	-6.6	-3.9	-9.9
All Other	56,897	63,002	4,638	5,469	-9.7	-36.7	-5.0
Total	2,705,141	2,860,563	297,804	288,579	-5.4	-5.0	-5.5
ENID MSA							
Food	84,462	87,291	9,659	8,925	-3.2	10.9	-3.1
Apparel	13,741	13,837	1,516	1,334	-0.7	1.5	-3.1
General Merchandise	35,928	35,721	4,124	3,569	0.6	-1.8	-11.4
Furniture	8,949	9,016	859	893	-0.7	-2.2	2.2
Lumber	11,984	13,045	1,323	1,410	-8.1	-0.5	1.7
Auto Dealers	68,748	77,380	6,988	6,719	-11.2	-20.7	-12.9
Service Stations	11,415	12,226	1,283	1,332	-6.6	-3.9	-9.9
All Other	26,133	24,685	2,849	2,874	5.9	-6.6	-1.1
Total	261,360	273,201	28,601	27,056	-4.3	-4.0	-6.7
LAWTON MSA							
Food	141,859	137,774	15,321	14,886	3.0	-5.0	-13.0
Apparel	16,640	15,464	1,748	1,667	7.6	-7.1	-8.8
General Merchandise	103,404	87,557	12,125	10,318	18.1	2.6	-10.0
Furniture	19,886	23,761	2,521	2,215	-16.3	38.3	24.9
Lumber	14,653	17,582	1,705	1,723	-16.7	5.5	-3.5
Auto Dealers	91,619	103,036	9,312	8,953	-11.1	-20.7	-12.9
Service Stations	7,793	8,335	876	910	-6.5	-3.9	-9.9
All Other	28,731	31,786	2,798	3,785	-9.6	-9.7	2.9
Total	424,585	425,295	46,406	44,457	-0.2	-5.3	-9.1
MUSKOGEE AREA							
Food	101,139	104,798	11,048	10,867	-3.5	2.0	-7.8
Apparel	14,420	14,178	1,750	1,650	1.7	16.9	8.5
General Merchandise	30,402	30,744	4,108	3,764	-1.1	7.9	3.3
Furniture	9,541	11,223	1,047	968	-15.0	-1.8	-21.0
Lumber	4,001	4,574	417	434	-12.5	-0.2	-6.7
Auto Dealers	57,792	65,068	5,872	5,648	-11.2	-20.7	-12.9
Service Stations	9,991	10,711	1,121	1,165	-6.7	-3.9	-10.0
All Other	27,447	25,276	3,501	3,163	8.6	1.1	6.0
Total	254,733	266,572	28,864	27,659	-4.4	-2.7	-5.9
STATE[a]							
Durable Goods	4,288,816	4,800,355	452,696	439,301	-10.7	-13.3	-9.3
Auto Dealers	3,001,353	3,378,932	305,041	293,289	-11.2	-20.7	-12.9
Accessory Dealers	248,066	257,399	29,740	29,157	-3.6	8.3	-0.2
Total Automotive	3,249,419	3,636,331	334,781	322,446	-10.6	-18.8	-11.9
Furniture	188,443	204,826	20,522	20,306	-8.0	1.9	-1.8
Household Appliances	170,296	177,503	21,010	20,634	-4.1	3.9	0.4
Total Furniture and Appliances	358,739	382,329	41,532	40,940	-6.2	2.9	-0.7
Lumber and Building Materials	418,377	476,278	47,518	50,344	-12.2	6.7	2.4
Hardware Stores	47,327	48,012	5,485	5,241	-1.4	5.8	-0.6
Total Lumber, Building Materials & Hardware	465,704	524,290	53,003	55,585	-11.2	6.6	2.1
Nondurable Goods	7,663,302	8,287,544	781,994	754,991	-7.5	0.7	-7.9
Apparel	469,805	472,386	52,576	50,209	-0.5	1.6	-0.8
Drug Stores	408,075	369,981	46,150	42,224	10.3	3.9	-1.7
Eating and Drinking Places	1,419,386	1,398,163	153,356	151,062	1.5	-4.5	-11.9
Food Group	2,880,179	3,463,555	250,837	258,218	-16.8	-2.2	-5.1
Service Stations	508,481	544,461	57,166	59,333	-6.6	-3.9	-9.9
General Merchandise Group	1,417,404	1,446,082	155,560	141,159	-2.0	-0.2	-12.0
Total Retail Trade	11,952,118	13,087,899	1,234,690	1,194,292	-8.7	-4.9	-8.4

[a]Total includes data for categories not shown in the table.

RETAIL TRADE IN SELECTED CITIES
($000)

Retail Trade	9 Mos. '87 Adjusted	9 Mos. '86 Adjusted	Sept. '87 Adjusted	Sept. '87 Unadjusted	Percentage Change 9 Mos. '87/'86 Adjusted	Percentage Change Sept./Aug. '87 Adjusted	Percentage Change Sept./Aug. '87 Unadjusted
Ada	119,915	126,681	13,393	12,588	-5.3	-2.1	-7.0
Altus	107,132	116,358	11,848	10,769	-7.9	-5.5	-11.5
Alva	24,588	35,104	2,247	2,256	-30.0	-10.9	-11.6
Anadarko	40,249	46,805	4,627	4,386	-14.0	-1.7	-10.1
Ardmore	161,058	170,366	18,242	16,854	-5.5	-4.6	-13.5
Bartlesville	166,430	175,461	17,252	16,693	-5.1	-8.5	-11.3
Blackwell	26,329	30,010	2,705	2,662	-12.3	-11.4	-12.0
Broken Arrow	155,025	168,020	16,960	16,478	-7.7	-6.4	-7.0
Chickasha	78,264	84,805	8,715	8,389	-7.7	-4.5	-3.9
Clinton	52,775	56,928	5,622	5,360	-7.3	-7.0	-8.4
Cushing	46,455	53,655	5,263	5,000	-13.4	-5.2	-4.7
Del City	98,502	89,400	10,481	10,042	10.2	-8.3	-10.5
Duncan	116,078	127,621	12,592	11,892	-9.0	-9.9	-12.2
Durant	89,038	86,091	9,472	9,153	3.4	-7.6	-12.7
Edmond	189,441	220,434	20,203	20,094	-14.1	-17.7	-20.5
Elk City	62,547	69,944	7,042	6,599	-10.6	-3.8	-10.5
El Reno	65,062	72,429	7,235	6,952	-10.2	-2.8	-3.6
Guthrie	43,479	49,321	4,718	4,513	-11.8	-0.8	-10.0
Guymon	38,092	42,636	4,133	3,955	-10.7	-0.7	-7.7
Henryetta	39,545	44,137	4,435	4,218	-10.4	-2.4	-11.4
Hobart	19,983	22,194	2,193	2,039	-10.0	-7.1	-10.2
Holdenville	23,356	26,011	2,521	2,372	-10.2	-12.1	-11.6
Hugo	23,631	25,781	2,476	2,396	-8.3	-19.0	-21.6
Idabel	32,565	36,357	3,457	3,257	-10.4	-7.6	15.9
Lawton	423,238	426,192	47,151	44,314	-0.7	-2.7	-9.2
McAlester	83,722	90,098	8,930	8,667	-7.1	-8.3	-12.7
Miami	97,041	105,438	11,387	10,541	-8.0	2.9	-1.2
Midwest City	293,902	316,190	34,645	32,261	-7.0	4.4	-2.1
Moore	117,499	116,899	12,949	12,594	0.5	-6.4	-8.3
Muskogee	243,689	252,300	27,646	26,338	-3.4	-3.4	-6.9
Norman	502,811	550,479	52,995	53,462	-8.7	-12.3	-10.4
Oklahoma City	2,328,875	2,437,461	260,463	249,177	-4.5	-4.1	-6.1
Okmulgee	47,851	50,635	5,749	5,439	-5.5	-0.6	-7.3
Pauls Valley	33,130	36,818	3,882	3,781	-10.0	6.6	-0.0
Pawhuska	13,971	16,606	1,423	1,411	-15.9	-7.8	-16.1
Ponca City	134,122	139,440	15,908	15,117	-3.8	0.3	-4.8
Poteau	37,526	41,382	3,553	3,338	-9.3	-21.9	-24.7
Sand Springs	70,898	73,347	7,766	7,574	-3.3	-5.9	-8.7
Sapulpa	107,060	117,491	11,571	11,006	-8.9	-7.6	-10.9
Seminole	50,125	56,891	5,533	5,109	-11.9	-0.2	-7.8
Shawnee	205,011	212,351	23,110	22,215	-3.5	-0.5	-5.2
Stillwater	202,185	197,576	23,375	23,108	2.3	4.5	-9.6
Tahlequah	66,446	67,478	7,439	7,266	-1.5	-0.1	-6.1
Tulsa	2,044,617	2,167,877	228,762	220,460	-5.7	-1.9	-4.3
Watonga	15,106	16,437	1,722	1,562	-8.1	5.1	-8.2
Weatherford	45,674	52,048	4,714	4,734	-12.2	-12.0	-13.5
Wewoka	9,891	10,791	975	940	-8.3	-15.9	-17.5
Woodward	94,058	103,963	10,271	9,722	-9.5	-8.1	-12.3
Total Selected Cities	9,087,987	9,632,737	1,009,751	969,053	-5.7	-4.2	-7.3

ENID AND LAWTON MSAs

Category	9 Mos. '87	9 Mos. '86	Sept. '87	Percentage Change 9 Mos. '87/'86	Percentage Change Sept./Aug. '87
ENID MSA					
Employment (Number)					
Labor Force	29,728	31,500	29,375	-5.6	-1.1
Total Employment	27,536	29,000	27,800	-5.0	-0.3
Unemployment Rate (%)	7.3	7.9	5.4	—	—
Industrial Power Sales (000 Kwh)	342,574	352,235	39,859	-2.8	-1.7
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	1,273	1,460	275	-12.8	-15.4
Number of Units	14	21	3	-33.3	0.0
Residential—Multi Family					
Dollar Value ($000)	0	2,000	0	—	0.0
Number of Units	0	62	0	—	0.0
Nonresidential					
Commercial ($000)	452	789	20	-42.7	—
Industrial ($000)	1,194	1,587	0	-24.8	0.0
Institutional ($000)	0	0	0	0.0	0.0
Nonbuilding					
Streets and Highways ($000)	264	193	264	37.1	—
All Other Nonbuilding ($000)	307	9	30	E	—
Total Construction ($000)	3,491	6,037	588	-42.2	81.0
LAWTON MSA					
Employment (Number)					
Labor Force	47,725	48,500	47,525	-1.6	0.2
Total Employment	45,297	46,000	45,300	-1.5	0.5
Unemployment Rate (%)	5.1	5.0	4.7	—	—
Industrial Power Sales (000 Kwh)	147,066	152,556	18,973	-3.6	12.8
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	14,606	17,215	820	-15.2	-12.4
Number of Units	228	273	14	-16.5	7.7
Residential—Multi Family					
Dollar Value ($000)	400	2,119	0	-81.1	0.0
Number of Units	16	78	0	-79.5	0.0
Nonresidential					
Commercial ($000)	2,813	4,774	47	-41.1	-90.5
Industrial ($000)	20	1,108	0	-98.2	0.0
Institutional ($000)	1,400	1,638	1,400	-14.5	—
Nonbuilding					
Streets and Highways ($000)	499	2,207	0	-77.4	0.0
All Other Nonbuilding ($000)	0	0	0	0.0	0.0
Total Construction ($000)	19,738	29,060	2,267	-32.1	58.3

Note: Includes revisions.
E = exceeds 600 percent.

MUSKOGEE MA

Category	9 Mos. '87	9 Mos. '86	Sept. '87	Percentage Change 9 Mos. '87/'86	Percentage Change Sept./Aug. '87
Employment (Number)					
Labor Force	32,939	33,000	32,825	-0.2	1.4
Total Employment	30,111	29,900	30,350	0.7	1.8
Unemployment Rate (%)	8.6	9.2	7.5	—	—
Industrial Power Sales (000 Kwh)	147,716	125,279	14,865	17.9	-10.0
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	4,392	1,008	0	335.6	—
Number of Units	60	15	0	300.0	—
Residential—Multi Family					
Dollar Value ($000)	1,427	2,167	0	-34.1	—
Number of Units	35	40	0	-12.5	—
Nonresidential					
Commercial ($000)	8,354	253	0	E	—
Industrial ($000)	2,465	0	0	—	0.0
Institutional ($000)	1,523	1,629	0	-6.5	0.0
Nonbuilding					
Streets and Highways ($000)	79	319	0	-75.4	0.0
All Other Nonbuilding ($000)	14	15	0	-9.4	0.0
Total Construction ($000)	18,253	5,391	0	238.6	—

Note: Includes revisions.
E = Exceeds 600 percent.

TULSA MSA

Category	9 Mos. '87	9 Mos. '86	Sept. '87	Percentage Change 9 Mos. '87/'86	Percentage Change Sept./Aug. '87
Employment (Number)					
Labor Force	357,833	357,500	352,800	0.1	-1.3
Total Employment	328,600	327,300	329,400	0.4	-0.7
Manufacturing	49,678	51,589	49,600	-3.7	-0.4
Mining	17,067	17,822	17,100	-4.2	-1.2
Government	35,844	36,689	35,100	-2.3	2.0
Wholesale and Retail Trade	73,578	72,633	73,700	1.3	-0.4
Unemployment Rate (%)	8.2	8.4	6.6	—	—
Average Weekly Earnings					
Manufacturing ($ Per Worker)	433.97	414.78	463.94	4.6	3.8
Industrial Power Sales (000 Kwh)	1,570,369	1,498,025	183,645	4.8	-5.3
Mortgage Loans Closed ($000,000)	NA	NA	NA	—	—
Bank Deposits ($000,000)[a]					
Demand Deposits	852	701	868	21.6	6.5
Time and Savings Deposits	2,323	2,026	2,293	14.7	1.4
Air Transportation					
Passengers Enplaning (Number)	1,061,851	1,031,364	104,606	3.0	-17.7
Passengers Deplaning (Number)	1,076,944	1,030,898	105,522	4.5	-21.1
Freight (Tons)	11,701	7,628	1,374	53.4	8.2
Water Transportation					
Tulsa Port of Catoosa					
Tons In	399,426	384,643	38,148	3.0	-28.2
Tons Out	929,940	756,649	60,067	22.9	-27.4
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	97,257	87,911	848	10.6	-5.1
Number of Units	1,404	1,418	140	-1.0	-10.3
Residential—Multi Family					
Dollar Value ($000)	11,376	32,250	0	-64.7	0.0
Number of Units	531	872	0	-39.1	0.0
Nonresidential					
Commercial ($000)	17,642	37,314	2,233	-52.7	147.5
Industrial ($000)	5,967	7,167	241	-16.7	—
Institutional ($000)	11,015	18,459	645	-40.3	19.8
Nonbuilding					
Streets and Highways ($000)	16,578	17,050	2,998	-2.8	-16.1
All Other Nonbuilding ($000)	3,566	4,848	88	-26.4	-79.4
Total Construction	163,402	204,999	16,052	-20.3	1.4
General Business Index	87.1	85.8	86.0	1.5	0.1

Note: Includes revisions.
[a]Deposits in large commercial banks.

OKLAHOMA CITY MSA

Category	9 Mos. '87	9 Mos. '86	Sept. '87	Percentage Change 9 Mos. '87/'86	Percentage Change Sept./Aug. '87
Employment (Number)					
Labor Force	503,000	518,200	500,300	-2.9	-0.2
Total Employment	471,756	483,100	474,500	-2.3	0.4
Manufacturing	48,667	50,100	48,800	-2.9	0.0
Mining	11,722	14,378	11,700	-18.5	0.0
Government	96,378	97,800	95,500	-1.5	3.5
Wholesale and Retail Trade	97,422	104,144	97,600	-6.5	0.2
Unemployment Rate (%)	6.2	6.8	5.2	—	—
Average Weekly Earnings					
Manufacturing ($ Per Worker)	447.39	434.97	459.41	2.8	1.7
Industrial Power Sales (000 Kwh)	910,744	926,363	108,780	-1.7	-0.1
Mortgage Loans Closed ($000,000)	NA	NA	NA	—	—
Bank Deposits ($000,000)[a]					
Demand Deposits	916	936	958	-2.2	5.7
Time and Savings Deposits	1,707	2,185	1,352	-21.8	-10.3
Air Transportation					
Passengers Enplaning (Number)	1,444,848	1,110,078	111,654	3.1	-21.6
Passengers Deplaning (Number)	1,157,704	1,129,341	111,734	2.5	-26.2
Freight Enplaned (Tons)	4,461	5,737	551	-22.2	23.5
Freight Deplaned (Tons)	7,293	8,417	893	-13.4	19.2
PERMIT-AUTHORIZED CONSTRUCTION					
Residential—Single Family					
Dollar Value ($000)	119,990	146,042	12,572	-17.8	9.2
Number of Units	1,916	2,438	184	-21.4	-0.5
Residential—Multi Family					
Dollar Value ($000)	1,344	26,727	0	-95.0	—
Number of Units	59	925	0	-93.6	—
Nonresidential					
Commercial ($000)	93,055	49,618	9,642	87.5	-56.3
Industrial ($000)	3,277	3,961	0	-17.3	—
Institutional ($000)	15,477	6,605	2,595	134.3	-37.2
Nonbuilding					
Streets and Highways ($000)	38,436	38,166	2,514	0.7	-42.4
All Other Nonbuilding ($000)	4,261	2,803	475	52.0	5.3
Total Construction ($000)	275,839	273,922	27,797	0.7	-1.4
General Business Index	88.7	85.1	90.8	4.3	0.1

Note: Includes revisions.
[a]Deposits in large commercial banks.

Sources for all tables: Local utilities companies; 10th Federal Reserve District Member Banks; Federal Home Loan Bank of Topeka; Oklahoma Employment Security Commission; United States Department of Commerce, Construction Statistics Division; Oklahoma Department of Transportation, *Progressive Report of the Transportation Director*; Center for Economic and Management Research, College of Business Administration, The University of Oklahoma. The data for all tables were compiled by Marjorie E. Earley, Statistician for CEMR and Brian Hickey, Research Assistant.

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Business Highlights

Neil J. Dikeman, Jr.

In the latter half of 1986 and throughout the first half of 1987, many economists were forecasting the beginning of a turnaround for Oklahoma's economy during the latter half of this year. To date, there has been little indication that this reversal of the near four year decline in business activity in the State is occurring. Certainly there are some optimistic signs such as the continuing reduction in the rate of decline in construction activity, the diminution in the unemployment rate and the decrease in the number of bankruptcies. However, other sectors of the economy which, in 1986 appeared to be recovering such as retail trade and real personal income, have apparently lost much of the momentum they have had and are now lagging behind year ago figures.

Personal Income:

One of the most important economic indicators—personal income—experienced fractional gains during both August and September and as a result, the total for the first nine months of the year is 1.5 percent ahead of the same period last year. However, when inflationary factors are removed, real personal income received by Oklahoman's during the period lags last year's total by 1.7 percent. The major reason for the slow increase in personal income (before removal of inflation) thus far this year is that increases in wage and salary, proprietors and property income have each risen at very modest rates with only wages and salaries paid to construction workers exceeding the rate of inflation. At the present rate of increase, personal income by year's end will total only $41.1 billion which will be 1.2 percent ahead of the total for 1986. After adjustment for inflation real personal income for the year then will fall 2 percent below last year's level.

Retail Sales:

Retail sales for the first three quarters of the year clearly reflect the lag in personal income and are falling far short of earlier expectations. This is witnessed by the fact that the dollar volume of retail sales in Oklahoma before seasonal adjustment registered its second successive decline in September and the fourth in the past nine months. Unfortunately, in four of the five earlier months in which sales increased the gains were less than normal thus leaving total sales for the first nine months of the year 8.7 percent below the level of 1986 and the lowest at this time of the year since 1983.

The September drop in total sales was attributable to a 9.3 percent decline in sales of durable goods which was a greater decrease than was seasonally expected thus pushing the adjusted level of sales 13.3 percent below August. This loss was tempered slightly by the less than seasonal decline in sales of non-durable goods that resulted in a fractional increase in the adjusted total of sales in the soft goods lines. For the year to date sales of durable goods throughout the State were 10.7 percent less than for the same period last year.

The sharp September drop in sales of durable goods was the result of a near 13 percent decline in automobile sales and a decrease of 1.8 percent in furniture sales. These two major declines were augmented by a fractional loss in sales of hardware. It should be noted that there were some bright spots in the durable goods picture as appliance sales rose by 0.4 percent and lumber sales were 2.4 percent above the August totals.

The decline in non-durable goods sales between August and September was the largest of the year to date and was caused by decreases in all soft goods categories the largest of which were the 12 percent drop in sales of general merchandise stores and the near 12 percent downturn in restaurant sales. This latest decrease in sales of non-durable goods was the fifth in succession and the sixth out of the last nine months. As a result, sales of non-durable goods thus far this year remain 7.5 percent below the level at this time last year.

As has been the case throughout most of 1987, the decline in retail sales this year has been most acute in the smaller communities throughout the State. This is evidenced by the fact that while sales statewide are off last year's total by $1.1 billion or 8.7 percent, sales in the metropolitan areas are off by only $400 million or 4.6 percent. This means that the level of

retail sales in the State's smaller communities are down by $700 million or 16.3 percent. Of even greater concern is the fact that sales in those communities which are outside the metropolitan areas are down by $600 million or 26.6 percent.

The pattern of retail sales to date indicates that if retail sales are to approach the record level set in 1986, sales during the last quarter of the year must approach $7 billion which will be $1.3 billion more than sales during the fourth quarter of 1986. Early indications are that sales during the remainder of the year will show a gain of only between 6 and 10 percent over the fourth quarter of last year which will bring the total for the year to about $16.8 billion or 3.5 percent less than the total for 1986. This will put the level at about the 1985 level which was second highest in history in terms of current dollars. However, when removing the effects of inflation, the level will conform closely to 1986 sales after adjustment for inflation.

Bank Deposits:

Deposits in all depository institutions in the State also reflected the decline in real personal income as they dropped for the eighth successive month in September. But the problem with this indicator is more complex than with retail sales because most of the monthly decreases which have occurred are in savings deposits where deposits have been flowing out to investment programs paying higher interest rates than are available in the regulated depository institutions. It is entirely possible that recent fluctuations in the stock market will drive some of the deposits back into the normal pattern, if so, then the depository institutions may experience some meaningful increases in deposits during the last quarter. However, at the end of the third quarter, deposit levels in the regulated institutions were 2.4 percent below the total at this time in 1986. If significant amounts of deposits continue to be transferred into investments, it is probable that, by the end of the year, deposits will be off last year's level by as much as 3 percent.

Crude Oil Production:

Crude oil production has continued to decline throughout the year so that by the end of September, production was 9.6 percent less than 1986 and promises to be even further behind by the end of the year. In fact, production for the year could drop to 131 million barrels which would represent a loss of about 4.4 percent during the year and the lowest level in at least the last three decades.

Construction Activity:

As noted earlier, the construction industry appears to be strengthening as the dollar volume thus far this year was only 6.1 percent below the total for the same period last year. This compares favorably with the record in 1986 when the dollar volume of construction activity for the first nine months was 34.1 percent below the same period in 1985 which, in turn, was 27.9 percent below the total for the first three quarters of 1984. Much of the improvement in the construction picture this year has been due to a 30 percent increase in commercial building activity and to a fractional gain in street and highway building. The fact that the rate of decline in the value of single family dwellings has dropped to 4.7 percent this year also serves to offset the relatively large decreases in the construction of multifamily dwellings as well as industrial and institutional buildings. Since no appreciable increases in construction activity are expected during the last quarter because of the weather conditions normally associated with this period, it is likely that construction activity for the year will remain at between 6 and 7 percent below the total for 1986.

Employment:

The employment picture in Oklahoma thus far in 1987 presents a mixed picture. The good news being that the unemployment rate in September dropped to 6 percent which reduced the average monthly unemployment rate for the year to 7.6 percent. Thus, the number of unemployed during the first 9 months of 1987 averaged 118,700 persons which was 10 percent less than the average of 131,900 who were unemployed during the same period last year. The bad news is that none of this decrease in unemployment was due to the addition of new jobs but to a decrease of nearly 31 thousand in the total labor force. Since this decrease was greater than the decline of 17 thousand jobs in average monthly employment, the unemployment rate was down despite the average monthly decline in employment.

Much of this year's decline in employment occurred in the agricultural sector where the average for the year to date is 19.3 percent below that of last year. This coupled with the decreases in average monthly employment of 3.3 percent in manufacturing, 4.8 percent in mining and 3.5 percent in contract construction were largely responsible for the overall drop of 1.2 percent in average monthly employment during the first three quarters this year from the same period last year. Given the history of employment in Oklahoma this year, it is not likely that the picture will change appreciably during the remainder of this year thus leaving employment about 1 to 1.5 percent below 1986.

The General Business Index:

Despite the relatively pessimistic outlook evidenced by most of the indicators noted earlier, there is one piece of news that offers more than a glimmer of hope for improvement in Oklahoma's economy if not this year then for 1988. The good news is that changes in a number of other indicators such as the decrease in bankruptcies and increases in sales of manufactured goods, to mention only two, caused the General Business Index of Oklahoma rise for the seventh successive month in September. These increases, while generally modest, were sufficient to push the average of the Index for the first nine months up to 93.7 which is 3.2 percent higher than the 90.8 average attained during the same period last year. At the current rate of increase, the Index should reach an average of 94.0 by the end of the year which would mean a growth rate for the year of 3.2 percent over 1986.

Neil J. Dikeman, Jr. is Associate Director for the Center for Economic and Management Research.

The Development of General Business Indexes for Oklahoma and Selected Areas

Craig Knutson

General Business Indexes (GBIs) for the Oklahoma City Metropolitan Area, Tulsa Metropolitan Area, and the State of Oklahoma have been developed through the coordinated efforts of Southwestern Bell Telephone (SWBT) and the Center for Economic and Management Research (CEMR) at the University of Oklahoma. These Indexes are the first of five economic indicators under consideration for development: the other two would cover the Enid and Lawton area.

The Federal Government, through the United States Department of Commerce, releases a set of monthly indexes that track current and predicted economic activity for the United States. The indexes described herein were designed and tested to perform a like function, but for more specific geographic areas (i.e. Metropolitan Oklahoma City and Tulsa as well as the State of Oklahoma).

While data relating to an individual economic indicator or variable are available (e.g., metropolitan labor force, sales tax collections, etc.) aggregate knowledge of the direction our local economy is moving in its entirety may be unknown. The General Business Index, which is a collection of many local economic variables, is able to provide a numerical gauge of total economic activity in relative terms in that such an indicator covers the entire spectrum of the local economy.

This project was conceived out of a need for a reliable measure of current and expected economic activity. Local businessmen as well as outside developers and consultants have long wondered whether their planned investments in the metropolitan and state markets were and would be financially sound. Without an accurate barometer of current economic conditions, most economic forecasts for public and private users have been limited to assessments of the local economy based on a few economic variables.

The development of the General Business Indexes also serves another useful purpose, that of educating the general public and business community about the structure of their economy because a well *informed* populace is more likely to make sound economic decisions concerning their future. Planning for future investments requires an accurate assessment of both where the economy has been and where it is now. By understanding which variables impact our economy most heavily, consumer and business spending plans can be more reliably developed.

A composite historical view of the entire economy was deemed necessary before a more precise picture of our current and expected economic "well-being" could be expressed. The index gives us a statistically reliable account of not only where we've been and are right now, but also provides a means for developing a six month to one year view of where the economy is most likely to be in the future.

The three indexes consist of separate and distinct economic variables that are, for the most part, specific to their geographic boundaries. The variables for each of the indexes (listed below) were selected because they: 1) represent what was found to present a comprehensive cross-section of local economic and business cycle conditions; 2) are data that can be collected monthly and with minimal reporting delay; and 3) have proven to be historically and reliably accurate.

Construction of each three General Business Indexes was accomplished in three steps:

1. Detrending: The variables are analyzed for long term growth (trend). Any variations which are not part of simple growth patterns are passed on to step two...
2. Deseasonalization: The variations passed on from the previous step are examined for seasonality (variation peculiar to certain times of the year). Any variations which are not seasonal are assumed to be combinations of irregular variations ("one-time" dips or bumps and not part of the overall pattern) and cyclical variations (reflecting patterns of change

due to the rise and fall of general business activity)...

3. Index formation: Each of the variables (now reduced to combinations of cyclical and irregular variations) weighted in accordance with the extent to which it now reflects general business (cyclical) activity rather than irregular activity. Finally, these weighted cyclical indicators are added together to form the GBI, which is then scaled to an average of 100.0 and standard deviation of 10.0.

Forecasting models are currently being developed for each index but their reliability measures are the strongest at the 4-6 month point, thus restricting forecasts, for now, to a half-year period. Confidence intervals widen rapidly due to the historically short nature of the basic time series (90+ months). However, the statistical tests measuring forecastability as well as a measure of intuitive confidence in the projections will improve with the addition of data points.

As a complete month's set of data for all the variables are available, the indexes are updated and a new forecast is generated. This will provide the capability of monitoring the progress of each of the indexes and, at the same time, to assess the reliability of each Forecasting Model.

Current plans are to release the findings on a quarterly basis with a brief synposis of where and why the indexes are moving each quarter. These plans will also include a comparative analysis of index values over time, thus providing the reader with both a numeric and graphic depiction of economic change for metro Oklahoma City and Tulsa as well as the State of Oklahoma. Any questions concerning the general or technical aspects of these indexes may be directed to Craig Knutson (SWBT) at (405) 278-5519 or Warren Dickson (CEMR) at (405) 325-5873.

Craig Knutson is a Staff Economist for Southwestern Bell Telephone.

General Business Index - Oklahoma

Variables	Units of Measure	Source
Labor Force	Persons (Thousands)	Oklahoma Employment Security Commission (OESC)
Total Employment	Persons (Thousands)	OESC
Wage & Salary Employment	Persons (Thousands)	OESC
Unemployment Rate	Percentage	OESC
Manufacturing Employment	Persons (Thousands)	OESC
Services Employment	Persons (Thousands)	OESC
Manufacturing Hours (Weekly)	Hours	OESC
Sales Tax Collections (Total)	Dollars (Thousands)	Oklahoma Tax Commission (OTC)
Taxes Collected on the Sale of Building Materials	Dollars (Thousands)	OTC
Taxes Collected on the Sale of General Merchandise	Dollars (Thousands)	OTC
Taxes Collected on the Sale of Apparel	Dollars (Thousands)	OTC
Gross Production Tax: Oil and Gas	Dollars (Thousands)	OTC
Intent-to-Drill Permits	Permits	Oklahoma Corporation Commission (OCC)
Taxes Collected on the Sale of Oil Field Equipment	Dollars (Thousands)	OTC
Seismic Crew Activity (Nationwide)	Crews	Society of Exploration Geophysicists
Active Rotary Rigs	Rigs	Hughes Tool Company
Total Personal Income	Dollars (Millions)	Center for Economic and Management Research (CEMR)
Bankruptcies	Filings	U.S. Bankruptcy Courts: Western, Eastern & Northern Districts
Loans Closed at State Savings and Loans	Dollars (Millions)	Federal Home Loan Bank (FHLB)

General Business Index - Oklahoma (continued)

Variables	Units of Measure	Source
Loans Committed at State Savings and Loans	Dollars (Millions)	FHLB
Net Savings at State Savings and Loans	Dollar (Millions)	FHLB
Total Net Deposits	Dollar (Millions)	FHLB
Residential Building Permits Activity	Units	CEMR
Non-Residential Building Permit Activity	Dollars (Thousands)	CEMR
Prices Received by Farmers — Beef	Dollars/100 Pounds	Oklahoma Department of Agriculture (ODA)
Prices Received by Farmers — Wheat	Dollars/Bushel	ODA
Bank Stock/Market Price	Index Value	Rubottom & Dudash
Full-Time State Government Employment	Persons	State Finance Department
State Government Expenditures (Payroll)	Dollars (Thousands)	State Finance Department

General Business Index - Oklahoma City

Variables	Units of Measure	Source
Labor Force	Persons (Thousands)	Oklahoma Employment Security Commission (OESC)
Total Employment	Persons (Thousands)	OESC
Wage & Salary Employment	Persons (Thousands)	OESC
Unemployment Rate	Percentage	OESC
Manufacturing Employment	Persons (Thousands)	OESC
Manufacturing Hours (Weekly)	Hours	OESC
Help Wanted Index	Value	Oklahoma Publishing Co. (OPUBCO)
Office Vacancy Rate	Percentage	Coldwell Banker
Oklahoma City Municipal Employment	Persons	Oklahoma City Accounting Dept.
Oklahoma City Municipal Payroll	Dollars	Oklahoma City Accounting Dept.
Oklahoma City Bankclearings	Dollars (Thousands)	Oklahoma City Chamber of Commerce
Sales Tax Collections Returned to Oklahoma City	Dollars (Thousands)	Oklahoma Tax Commission (OTC)
Sales Tax Collections in Oklahoma County	Dollars (Thousands)	OTC
Oklahoma City Metropolitan Retail Trade	Dollars (Thousands)	Center for Economic and Management Research (CEMR)
Local Prime Interest Rate	Percentage	1st Interstate Bank, Oklahoma City
Loans Closed at Metro Savings and Loans	Dollars (Millions)	Federal Home Loan Bank (FHLB)
Loans Committed at Metro Savings and Loans	Dollars (Millions)	FHLB
Net Deposits at Metro Savings and Loans	Dollars (Millions)	FHLB

General Business Index - Oklahoma City (continued)

Variables	Units of Measure	Source
Homes Sold in Metro Oklahoma City	Units	Oklahoma City Metro Board of Realtors
Residential Building Permit Activity	Units	Management Information Systems, City of OKC (MIS)
Non-Residential Building Permit Activity	Square Footage	MIS
Taxes Collected on the Sale of Building Material (in Oklahoma County)	Dollars (Thousands)	OTC
Taxes Collected on the Sale of Oil Field Equipment (in Oklahoma County)	Dollars (Thousands)	OTC
Active Rotary Rigs	Rigs	Hughes Tool Company
Intent-to-Drill Permits	Permits	Oklahoma Corporation Commission (OCC)
Bankruptcies	Filings	U.S. Bankruptcy Court: Western District

General Business Index - Tulsa

Variables	Units of Measure	Source
Labor Force	Persons (Thousands)	Oklahoma Employment Security Commission (OESC)
Wage & Salary Employment	Persons (Thousands)	OESC
Total Employment	Persons (Thousands)	OESC
Unemployment Rate	Percentage	OESC
Manufacturing Hours (Weekly)	Hours	OESC
Financial, Insurance & Real Estate Employment	Persons (Thousands)	OESC
Mining Employment	Persons (Thousands)	OESC
Manufacturing Employment	Persons (Thousands)	OESC
Construction Employment	Persons (Thousands)	OESC
Sales Tax Collections Returned to Tulsa	Dollars (Thousands)	Oklahoma Tax Commission (OTC)
Taxes Collected on the Sale of General Merchandise (Tulsa County)	Dollars (Thousands)	OTC
Taxes Collected on the Sale of Industrial Machinery (Tulsa County)	Dollars (Thousands)	OTC
Taxes Collected on the Sale of Oil Field Equipment (Tulsa County)	Dollars (Thousands)	OTC
Taxes Collected on the Sale of Building Materials (Tulsa County)	Dollars (Thousands)	OTC
Residential Building Permit Activity	Units	Center for Economic and Management Research (CEMR)
Non-Residential Building Permit Activity	Dollar Value (Thousands)	CEMR
Local Prime Interest Rate	Percentage	City Development, City of Tulsa
Total Bank Transactions	Dollars (Thousands)	Tulsa Clearinghouse
Loans Closed at Metro Savings and Loans	Dollars (Thousands)	Federal Home Loan Bank (FHLB)

General Business Index - Tulsa (continued)

Variables	Units of Measure	Source
Loans Committed at Metro Savings and Loans	Dollars (Millions)	FHLB
Net Deposits at Metro Savings and Loans	Dollars (Millions)	FHLB
Tulsa Metropolitan Retail Trade	Dollars	CEMR
Active Rotary Rigs	Rigs	Hughes Tool Company
Intent-to-Drill Permits	Permits	Oklahoma Corporation Commission (OCC)
Bankruptcies	Filings	U.S. Bankruptcy Court: Norther District
Help Wanted Index	Value	City Development, City of Tulsa

Comparative Patterns of Work Values Among Clerical Employees in Oklahoma, the USA and Other Nations

George W. England

Introduction

Work and working are an integral part of the human existence. Today, there is widespread recognition that the activity of working and the outcomes flowing from working are of fundamental significance to most individuals. In most industrialized societies, the average employed person spends approximately one-third of his/her waking hours in the activities that are known as "working." Additionally, the time one spends in preparation and training for work, seeking work, and planning for changed working situations suggests that work-related activities constitute a major utilization of time in the adult life. Related to this time-utilization feature of working is the fact that a majority of individuals in industrial societies derive the major part of their economic well-being (and for their family) from income and fringe benefits generated through their working activities.

Working and outcomes from working also provide non-financial or non-economic benefits to individuals. Were this not so, it would seem difficult to understand why 65 percent to 95 percent of individuals in national labor force samples in a variety of industrialized countries state that they would continue to work even if "they had enough money to live comfortably for the rest of their lives without working" (Vecchio, 1980; Warr, 1982; MOW International Research Team, 1987). This stated preference for working even when financial necessity is presumed not to be a significant consideration is undoubtedly related to the broader social value or significance individuals attach to working. This is demonstrated in studies such as Morse and Weiss (1955) in which most respondents indicated that "working gives them a feeling of being tied into the larger society, of having something to do, and of having a purpose in life."

Working situations and activities also may generate negative consequences, outcomes and personal states for individuals. Working is sometimes experienced as boring, dull or unchallenging at one end of the spectrum or as being excessively overloaded at the other end of the spectrum. The result can be frustration, dissatisfaction, stress, or inadequate person-job fit which can impact negatively on both mental and physical health. Cooper and Payne (1978, 1980) have summarized much of this relevant literature.

Working seems, then, to be of general significance to individuals because it occupies a great deal of their time, because it generates economic and socio-psychological benefits *and* costs and because it is so interrelated with other important life areas such as family, leisure, religion and community.

Work and working have been written about and studied in most of mankind's recorded history. While the purposes, focal points, and methods of such inquiry are certainly constrained by the zeitgeist of the time, the unrelenting subjective significance and value of working to individuals, to organizations and to societies are always evident. There does seem, however, to be an increased urgency to the study of working in the past two decades which stems from at least six interrelated conditions:

- increased international competition in the market place,
- increased rates of technological change and organizational and industrial sector restructuring,
- changes in labor force composition and educational qualifications
- trends in productivity and savings patterns in a number of economies which are viewed as disturbing,
- concern that elements of the "work ethic" seem to be changing in many countries in ways that are presumed to be undesirable,
- concern that working may not provide the type of meaning, social significance and satisfaction to individuals that was once

presumed to be the case.

This recent increased concern about work and working is not a single country phenomenon but seems relatively universal in the industrialized world although the focal points of concern differ somewhat in various countries.

It was out of this general mileau that the first comprehensive Meaning of Working (MOW) study jointly designed and conducted by behavioral scientists from advanced technological nations was described in the scientific literature in 1981 (MOW International Research Team, 1981). The primary data collection included nearly 15,000 respondents in eight countries and international comparative results are published in the book, *The Meaning of Working* (MOW International Research Team 1987).[1]

In the MOW project, we clearly recognized that the meaning of working is a broad and general topic analogous in many respects to other broad topics such as the meaning of life. These broad meanings seem predominantly experiential in nature, thus a logical approach for their study (in our case, the meaning of working) was to querry, observe and study those experiencing working. Common observation and research evidence also suggests that the meaning of working can vary tremendously from one person to the next, thus it seemed necessary to focus study on the individual and then to aggregate individual data to form relevant groups of concern such as occupational groups, age groups, gender groups and national labor forces. All of these considerations led us to the strategy of studying the meaning of working for representative labor force samples in nations using carefully developed, translated, pretested and standardized forms of questioning.

Major Components in the Meaning of Working

The conceptual framework in the MOW project posited that the meaning of working should be defined and thus assessed in terms of three major components:

Work Centrality – Defined as the degree of general importance that working has in the life of an individual at any given point in time. Work centrality was assessed by combining an absolute measure of the importance of working in one's life and a relative measure of the importance of working in one's life as compared to the importance of other life roles. The work centrality measurement attempts to answer the question: how central or important is the role of working in one's life?

Work Goals – defined as the relative importance of eleven work goals and values which are sought or preferred by individuals in their working lives. The eleven work goals were:

- A lot of opportunity to learn new things
- Good interpersonal relations (supervisors, co-workers)
- Good opportunity for upgrading or promotion
- Convenient work hours
- A lot of variety
- Interesting work (work that you really like)
- Good job security
- A good match between your job requirements and your abilities and experience
- Good pay
- Good physical working conditions (such as light, temperature, cleanliness, low noise level)
- A lot of autonomy (you decide how to do your work)

Societal Norms about Working – The MOW project focussed on two normative views toward work and working which capture much of the historical and contemporary discussion relevant to the meaning of working. The entitlement norm represents the underlying rights of individuals and the work related responsibilities of society and organizations toward all individuals. This norm includes the notion that *all members* of society are entitled to have work if they desire it; are entitled to interesting and meaningful work; are entitled to training when it is needed; and have the right to participate in work method decisions. All of these notions are entitlements or rights which come from standards of reasoning about property rights and the psychological contract as applied to the work setting.

The *obligation* norm represents the underlying duties of all individuals to organizations and to society with respect to working. This norm includes the notions that *everyone* has a duty to contribute to society by working; should save for the future from their work income; and should value their work whatever its nature. These notions are obligations or duties which come from standards of reasoning about internalized personal responsibility and social or institutional commitment.

Each individual studied can show a high, medium or low degree of agreement with each of the two norms. Additionally, an individual's responses to the two norms may be characterized as representing a balanced orientation (similar levels of agreement to the entitlement and the obligation norms), an entitlement orientation (greater agreement with the entitlement norm than with the obligation norm), or an obligation orientation (greater agreement with the obligation norm than with the entitlement norm).

It is primarily through the patterning of these three major components (work centrality, work goal preferences, and societal norms about working) that we attempt to portray the basic work values or work personality of the individual. By aggregating individuals, one can focus attention upon specific groups of interest such as occupations or national labor forces.

Comparing Work Values

A reasonable sample (N = 176) of clerical workers in Oklahoma was studied during the same time period as the MOW study but for different purposes. The Oklahoma clerical worker study, however, included the major variables as defined and measured in the International MOW study. Thus it is now possible to utilize general MOW findings and comparative methodology to contrast work value patterns of Oklahoma clerical workers with those of clerical workers in the USA labor force and with those of clerical workers from a composite of six industrial nations.[2]

The strategy adopted for contrasting the value patterns of clerical workers in these different geographical settings encompasses two important decisions. The first decision is to treat the work values of an individual in a wholistic manner as opposed to viewing work

values variable by variable (e.g., first look at work centrality, then work goals, then societal norms). While both approaches have utility, it seems clear that the totality of work values may be quite incomplete when we only examine single dimensions in isolation. Theoretically, the major work value variables do not operate independently within the individual; rather they form some pattern. The utilization of major work value patterns moves toward this wholistic view and permits more realistic comparisons among individuals or aggregations of individuals (i.e., clerical employees). The second important decision is to use general work value patterns and frameworks as developed on the basis of total labor forces in several countries when contrasting the different clerical samples. This decision allows one to utilize work value patterns and their correlates which have been shown to be stable and descriptively valid across a broad range of national samples.

The eight major patterns of work values which were developed in the MOW project and which are used in contrasting Oklahoma clerical workers with USA clerical workers and the six-country composite of clerical workers were developed through cluster analysis and discriminant analysis of the major variables previously identified. These procedures group together individuals who have similar work values to form homogeneous groups which differ as much as possible from other work values groups. For present purposes, these groups can be described briefly as follows.[3]

Pattern A workers have the second lowest work centrality scores among the eight groups. Their economic values are considerably lower than their relatively moderate expressive values.[4] Their obligation norms are the lowest among the eight patterns and considerably lower than their relatively high entitlement norms. These workers do not value working very highly nor do they have a normative orientation toward duty to employers or society. Additionally they do not value highly economic goals in their work. These workers are not highly work motivated. They tend to place a high value on family, leisure and interpersonal contacts relative to the value they place on work. They have the third highest percentage of workers among the eight patterns who would quit working if they were financially able (20 percent versus 15 percent for the total group). They also are relatively dissatisfied with their occupations. Nearly half (versus an overall average of 40 percent) would only continue working (given a choice) if at another occupation. Forty-six (versus an overall average of 40) percent indicate that they would choose another occupation if they could. The MOW pattern and work characteristics suggests that these people are "apathetic" about work as a significant life activity and this is the label used to describe them. They exchange a below average amount of effort (39 hours per week versus an overall average of 43), the lowest among the eight groups, for social interaction and a low wage.

The three salient characteristics for pattern B workers are their low work centrality, low expressive values and relatively high obligation norms. The work centrality score is the lowest and expressive values are the third lowest of the eight MOW patterns. These workers agree slightly more with statements concerned with their rights than statements concerned with their duties. However, the obligation score is moderately above the grand mean and these workers have the third highest obligation score among the eight patterns. What characterizes these workers is that they exchange a modest amount of their time for a near average wage. Their MOW pattern of low work centrality and low expressive values, and above average norm of obligation suggests that these people are "alienated" from their own low quality work and rather value other facets of their lives.

Pattern C workers have the highest economic work goals and the lowest expressive work goals among the MOW patterns. Additionally, their entitlement norms are approximately one standard deviation higher than their obligation norms. However, the entitlement and obligation scores are both relatively low in this MOW pattern, so the normative imbalance is between two relatively weak norms. Since the dominant feature of this MOW pattern is the relative levels and the imbalance between the two work goal dimensions we call these people "economic" workers. These workers have a relatively low level of occupational satisfaction: forty-six (versus 40) percent would choose a different occupation. A relatively high percentage (23 versus 15 percent) would quit working if they were financially able to do so. In summary, these workers exchange a near average level of effort (42 hours per week versus 43 hours) which is directed by others for a below average wage.

Pattern D workers have the second highest economic work goals among the eight groups. Additionally, both their obligation norms *and* their entitlement norms are the highest among the eight profiles. These two norms also are balanced or approximately equal. The features of high economic work goals, and high and balanced work norms especially characterizes this MOW pattern in comparison to the other patterns. For these reasons we have labeled these people as "high rights and duty economic" workers. These workers indicate near average occupational satisfaction. The percentage who would stop working if they were able is similar to the general average. In summary, these workers exchange a high and balanced normative orientation for an above average income and a feeling of belonging.

Workers in pattern E have the fifth lowest economic goals scores. Two other salient features center around their norms. Their entitlement norms are the lowest among the eight patterns. Their obligation norms are the third lowest among the patterns. Thus, workers with this pattern have weak norms regarding both rights and duties, although duties are endorsed somewhat more than rights. These workers have a particularly complex work values pattern. In addition to the three major features mentioned, they have a moderate level of work centrality and their expressive values, though higher than their economic values, are relatively moderate. These workers seem to exchange skill, knowledge and responsibility for a mixture of economic, expressive and status-prestige rewards. Features of their MOW pattern, their high educational attainment and their high job quality suggests that these people are best labeled "techno-bureaucratic" workers.

Pattern F workers have the third

highest work centrality scores among the eight patterns. Other major features of this profile are the large imbalance between the expressive and economic goals, and the relatively high obligation norms score. The economic work goals score is the next to lowest among the eight patterns and is about 2 standard deviations below that of the expressive goals. The obligation score is the second highest among the eight MOW patterns. Thus non-economic goals and high duty norms characterize this profile. For these reasons we call these respondents "duty oriented social contribution" workers. These workers define the concept "work" strongly as service to society. The occupational satisfaction of these workers is very high. Sixty-seven (versus 60) percent would choose the same occupation and two thirds of them would recommend their occupation to their children. Only seven percent indicate that they would stop working if financially able to do so, while 59 percent would continue to work in the same job. This later percentage is the highest among the eight MOW patterns. In summary, the workers with this MOW pattern seem to exchange skill, knowledge and responsibility for socially generated satisfaction and average income.

Pattern G workers have the second highest average work centrality score among the eight MOW patterns. Another notable feature of this pattern is the large imbalance between the work goal dimensions. There is about a two standard deviation difference between expressive work goals and economic work goals. Expressive work goals and work being central to one's life particularly characterize this profile. For these reasons we have called these respondents "work centered expressive" workers. These workers have the highest occupational satisfaction among the eight groups. Seventy-four (versus 60) percent would choose their occupation again, while sixty-nine (versus 62) percent would recommend their occupation to their children. These workers have a high commitment to work as they experience it, but not necessarily to *any* kind of work. Only 4 percent (versus 15 percent) would quit working if they were financially able, while 41 percent would choose a different job. In summary, workers with this MOW profile appear to exchange value adding mental effort for intrinsic satisfaction and above average income.

The results for pattern H indicate high work centrality, and relatively high and balanced economic and expressive work goals. This MOW pattern has the highest average work centrality score among the eight groups. The economic and expressive work goal dimensions are the third and second highest respectively, and differ from each other only slightly. Based on these findings we have labeled this a "work centered and balanced work goals" MOW pattern. This pattern is the most evenly distributed of the eight across occupational categories. Even given this wide distribution across occupational categories, the monthly net income of these workers is the highest among the eight groups. In terms of work involvement these workers have the longest average work week of any profile (47 versus 43 hours). Workers with this pattern have the highest level of work centrality among the eight groups. Consistent with this finding and their high behavioral involvement, we observe that they have a high level of commitment to their present work. Only 8 percent (versus 15 percent) would stop working if they were financially able to do. Additionally, 65 percent (versus 60 percent) would continue working in the same occupation. In summary, the MOW pattern and work characteristics of this group of workers suggests that they exchange mental and/or physical effort for intrinsic satisfaction and high income.

This description of MOW patterns points out the wide diversity in work value orientations of national labor force samples in these six advanced industrial countries. The patterns broaden the scope of descriptive understanding of the cognitive and affective frameworks used by workers in responding to or actively seeking to influence their work environments. The eight clearly identifiable and contrasting MOW patterns provide examples of the richness of work value orientations. They suggest that overemphasis on any single work values pattern is likely to inhibit discussion, inquiry and practical understanding of working as a major life activity. They also provide a useful way to contrast Oklahoma results with those of the nation and a variety of countries. It is to these contrasts that we now turn.

Work Value Comparison Results – Clerical Employees

Although we do not have sufficient Oklahoma data to compare the total Oklahoma labor force with that of the USA and other countries, we can make reasonable comparisons among clerical employees. Table 1 shows the percentage distribution of clerical workers who are classified into the eight major work value patterns for Oklahoma, for the USA and for a composite of six industrial countries. Thus, we can compare work values in our state with the nation and with a set of other countries for this one labor force segment.

It is clear from Table 1 that clerical employees in all three groups (state, nation, and international composite) are made up of individuals having a broad range of work values in terms of the eight major patterns. All three groupings contain one or two patterns with percentage representation of 5 percent or less but these are not always the same patterns. Each of the groups also contains three patterns which include about two-thirds of the individuals in the group. These three large patterns (in terms of inclusion) are the same ones for clerical workers in Oklahoma and the USA. For the composite international sample, only two patterns are the same as those found in Oklahoma and the USA. Thus it is clear that there are both similarities and differences in pattern distributions among the three groups.

For evaluative purposes, it seems most useful to focus on the content of the patterns as well as their frequency. Both Apathetic and Alienated workers (Patterns A and B) represent a negative set of work values whether judged from the vantage point of the individual or of the employing organization. Working is not a very important life role for those described by these two patterns; these individuals are not occupationally satisfied and they don't contribute a great deal of effort to their work. Twenty-three percent of Oklahoma clerical workers are found among these two categories as contrasted with 40 percent among USA clerical

TABLE 1

Percentage Distribution of Eight Major Work Value Patterns for Clerical Workers in Oklahoma, in the USA, and in a Composite of Six Countries

	Pattern	Percentage Distribution: Six Countries (N = 997)	USA (N = 160)	Oklahoma (N = 176)
A	Apathetic Workers	25	31	21
B	Alienated Workers	19	9	2
C	Economic Workers	17	21	37
D	High Rights and Duties Economic Workers	5	6	11
E	Techno-bureaucratic Workers	4	8	8
F	Duty Oriented Social-Contribution Workers	9	8	6
G	Work Centered Expressive Workers	8	2	0[a]
H	Work Centered and Balanced Work Goals Workers	14	15	14

[a]Less than .5 percent.

workers and 44 percent among the international clerical sample. Oklahoma is different in this respect and the difference is clearly an advantage.

The other major difference between the Oklahoma sample and those of the other two groups concerns Patterns C and D which share the common theme of economic orientation. In both of these patterns, economic values are significantly more valued than are expressive values. People in these patterns are much more concerned with their pay and job security than they are with how interesting their work is, the amount of autonomy they have and the extent to which their skills are utilized in work. Forty eight percent of Oklahoma clerical workers are found in Patterns C and D while the comparable percentages are 27 percent among USA clerical workers and 22 percent among the international group. Oklahoma has nearly two times the proportion of clericals in these two patterns as does the nation or the international group. Evaluation of this result is complicated and seems not be be either clearly favorable or unfavorable. Economic motivation is often viewed as the most powerful of all work motivation forces and in this sense Oklahoma clerical workers seem to present a potential advantage. The qualifier "potential" is used because these patterns of work values would seem to require some reasonable degree of actual economic reward for them to be effective motivators over any sustained period. On the negative side, it is often argued that over-reliance on economic motivation (perhaps more correctly viewed as under-emphasis on expressive motivation in the Oklahoma results) does not permit the utilization of a wide range of motivational forces. If such a high proportion of workers (nearly half for Oklahoma) seem to have primarily economic work values, it will be difficult to effectively use a wide range of work motivation forces. Finally, it should be noted the Patterns F, G, and H show a moderate under-representation by Oklahoma clerical workers in contrast to these in the USA and the international sample. In many respects, these three patterns would be classified as showing positive work values whether viewed from the perspective of the individual or of the employing organization. They generally have relatively high levels of work centrality, high occupational satisfaction and high levels of work involvement. Here, Oklahoma has the lowest percentage inclusion.

On balance, the work values picture as represented by Oklahoma clerical workers seems moderately favorable. It would seem of considerable value to extend this type of research to the total labor force in Oklahoma.

Notes

[1]The eight countries participating in the MOW project were Belgium, Britain, Federal Republic of Germany, Israel, Japan, Netherlands, United States of America, and Yugoslavia.

[2]The six countries which could be included in the clerical worker comparisons are Belgium, Germany (West), Israel, Japan, the Netherlands, and the USA.

[3]See England and Whitely, 1987 for procedural and more complete descriptions. These descriptions are abstracted from this source.

[4]The economic and expressive work goal dimensions (as identified by factor analysis) are utilized in the pattern analyses. The economic index is based on the responses of individuals to the importance of good pay and good job security as personal work goals. The expressive index is based on the responses of individuals to the importance of interesting work, skill utilization and autonomy as personal work goals. Responses to each set of goals were averaged to form the two dimension scores.

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A Shift-Share Analysis of the Manufacturing Sectors of Oklahoma and Surrounding States

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Introduction

This article reviews national manufacturing growth patterns and compares these patterns to what has happened in Oklahoma and other states within the region. Through the use of shift-share analysis, changes in employment over time are decomposed by industry and by state into three components: (1) that part resulting from overall national economic growth; (2) that part associated with national differences in industry growth rates; and (3) that part ascribed to the growth (or decline) of an industry in a state vis à vis the nation.

There are several reasons for examining these components of change. Foremost among these reasons is the concern that the State of Oklahoma has been drawn off its long-term growth path. Between 1974 and 1982, there was a massive shift in state resources towards the energy sector. During this period, the state enjoyed high rates of economic expansion, rising rents and wage levels, and low unemployment rates that, in all likelihood, discouraged more diverse types of businesses from locating in the state. Because many of Oklahoma's neighbors are less energy intensive, the ways in which they were able to grow during this period could point the way towards opportunities that could now be pursued in this state. In addition, examination of changing manufacturing employment patterns in the national economy, which is at the heart of shift-share analysis, helps provide a better understanding of where the possibilities for expansion lie. Finally, by conducting shift-share analysis, it is possible to ascertain where Oklahoma's comparative advantages are strongest.

National Manufacturing Trends

At the national level, manufacturing has not been a growth sector in recent years. The relative size of this sector has deteriorated considerably since 1960, when manufacturing employment represented 31 percent of total nonagricultural employment.[1] Today it is only about 19 percent. Moreover, since 1979, manufacturing has been losing ground in absolute terms as well. Currently, manufacturing employment is 1.8 million workers lower than the 1979 annual average of 21 million workers.[2]

The losses in manufacturing in the 1980s have two primary sources. First, there was a deep recession in 1981-1982, from which the U.S. economy is presently recovering. Second, the U.S. economy has been plagued with international trade problems, manifest in a high exchange value of the dollar. This has made U.S. goods relatively more expensive to foreigners and foreign goods relatively cheaper in the U.S. and has culminated in the massive U.S. trade deficits this country is currently experiencing.

The pace and direction of growth in total nonagricultural employment stands in sharp contrast to national manufacturing trends. Nonagricultural employment rose by 12.7 million workers, or 16 percent, from 1974 to 1981. Since 1981, it has risen an additional 8.8 million, nearly a 10 percentage point gain. In contrast, manufacturing employment has dropped about one million, roughly 5 percent. That the nation is increasingly becoming a service driven economy is readily apparent from these figures.

Manufacturing Trends in the Region

The region under study consists of Oklahoma and nearby states. Most of these states share borders, albeit sometimes not very long borders, with Oklahoma; these include Arkansas, Colorado, Kansas, Missouri, New Mexico, and Texas. Louisiana is added to the list because of its many similarities to Oklahoma.

The relative levels of manufacturing employment and the trends since 1970 vary considerably across the eight states. Arkansas has a very high percentage of its nonagricultural workforce in manufacturing, and its sector's relative share has remained high in comparison to the sizable decline in share of manufacturing

nationally. Missouri's share approximates the national level, while Kansas (which is particularly high in its durable goods component) follows fairly closely behind. With recent shares well below the national level (in the 14 percent range), the states of Colorado, Oklahoma, and Texas form a third group. Louisiana and New Mexico fall into a fourth group, with even lower shares of nonagricultural employment in manufacturing.

For all eight states, the trend in the share of employment in manufacturing has been distinctly downward. However, despite this decline in relative size, the manufacturing sectors of Arkansas, Colorado, and New Mexico gained employment between 1980 and 1986. This was counter to the national trend.

Shift-Share Analysis

To better understand these patterns, this study uses shift-share analysis to examine for each state in the region employment changes in all manufacturing industries between the years 1974 and 1981.[3] Shift-share analysis is a technique which decomposes a change in a region's employment (or output) into three factors: national growth; industry mix; and regional shift.[4]

Algebraically,

$$E'_{is} - E_{is} = r_n E_{is} + (r_{in} - r_n)E_{is} + (r_{is} - r_{in})E_{is}, \quad (1)$$

where E'_{is} and E_{is} refer to employment in industry i in state s in the ending and beginning years of analysis, r_n is the growth rate of all manufacturing nationally, r_{in} is the growth rate for industry i nationally, and r_{is} is the growth rate for industry i in state s.

A particular manufacturing industry in a state can expand or decline as a consequence of growth or decline in overall economic activity. This national growth component is the first term on the right-hand side of equation (1) and is determined by multiplying the national growth rate for all manufacturing (r_n) by the initial employment level of specific manufacturing industry i in each state (E_{is}). Thus, the national growth component measures the employment change that would have occurred in a state if employment in each industry had grown at the national average growth rate.

Growth or decline can also occur in a given industry in a state because that industry is gaining or losing ground, on a national level, relative to other manufacturing industries. The difference between a specific industry's national rate of growth and the national rate of growth in all manufacturing industries captures the extent of second component changes. This industry mix component is the middle term of equation (1). When this is summed across all industries, it reflects whether the state is specializing in high, average, or low growth industries.

The third team of equation (1) is the regional shift component. It measures the difference between the rate of growth of an industry in a state and the national growth rate in that industry. Therefore, if an industry is growing more rapidly in a state than it is in the nation, the regional shift component indicates a favorable shift towards the state.

In summary, shift-share analysis provides a way of determining the extent to which employment changes experienced by a state over time are associated with each of three factors: general national growth; the state's mix of industries; and geographic industry shifts. The shift-share analysis conducted for this article covers the period from 1974 through 1981. The year 1974 coincides with the beginning of the energy crisis and, therefore, serves as a useful benchmark upon which to assess the divergence from Oklahoma's long-term growth path. The year 1981 was selected as the terminal year of analysis because of the problems the U.S. manufacturing sector has been experiencing in recent years. By using 1981 as a terminal year, it is possible to abstract somewhat from the difficulties experienced on the national scene.

National Growth Component

In both 1974 and 1981, the national manufacturing employment levels were approximately equal (20.046 vs. 20.173 million workers). Consequently, the national growth component of change is negligible for all manufacturing industries and all states. In other words, during the 1974 to 1981 period, virtually all the employment change in the region was associated with either changes in industry mix or with shifts toward the region.

Industry Mix Component

There have been a number of rather radical shifts in manufacturing employment patterns during both the 1974 to 1981 period and the period since 1981. As discussed earlier, these shifts are captured by the industry mix component: In calculating this component, differences in industrial rates of growth are measured at national levels and are therefore identical for all states. The industry losers during the analysis period were, in order of employment loss, as follows: primary metal industries (-222,000 workers); miscellaneous durable goods (-214,000); textile mill products (-166,000) and apparel and other textile products (-104,000). On the other hand, the winners were nonelectrical machinery (+289,000); instruments and related products (+207,000); and printing and publishing (+154,000). Fabricated metal products, transportation equipment, electrical machinery, chemicals, and rubber and plastics scored decent gains, but with changes under the 100,000 mark.

The principal changes in industrial realignment of employment can be portrayed in Figure 1, where (+ +) indicates employment growth exceeding 100,000 workers, (+) indicates a growth in employment ranging from 40,000 to 100,000 workers, (0) stands for a change in employment ranging between plus and minus 40,000 workers, (-) designates employment losses between 40,000 and 100,000, and (--) specifies those manufacturing industries with employment losses in excess of 100,000. States which in 1974 had a higher-than-average proportion of rapid growth industries included Oklahoma, Missouri, and Kansas.[5] At least part of the total growth in employment in these states during the 1974-1981 period can be attributed to their favorable mix of industries.

Regional Shift Component

The regional shift component reflects the difference between state

FIGURE 1

--	+ +
Primary metal industries	Machinery, except electrical
Miscellaneous durable goods	Instruments
Textile mill products	Printing and publishing
Apparel	
-	**+**
Furniture and fixtures	Lumber and wood products
Stone, clay and glass	Fabricated metal products
Leather products	Electrical machinery
	Transportation equipment
	Chemical products
	Rubber and plastic products
0	
Food and kindred products	Tobacco manufactures
Paper and allied products	Petroleum and coal products

and national growth in a specific industry. It therefore measures whether an industry is growing more or less rapidly in a state than in the nation. By multiplying this difference in growth rates by a state's initial employment level, it is possible to determine how much of a state's growth in a particular industry can be attributed to regional shift. The remainder of this section examines how the individual states in the region fared in manufacturing employment gains during the 1974-1981 period, with emphasis on the regional shift component of this growth.

Oklahoma. Industry detail on manufacturing employment varies by state. Oftentimes industries that appear separately in national totals are aggregated at the state level. A moderately detailed breakout of manufacturing employment is available for Oklahoma. Review of these data indicates that Oklahoma grew substantially during the analysis period, in ways commensurate with national patterns. Between 1974 and 1981, Oklahoma's manufacturing employment rose from 157,000 to 200,000, with substantial gains occurring in the nonelectrical machinery, transportation equipment, and fabricated metal products industries. The printing and publishing and rubber and plastics industries experienced lesser gains.

In all these industries, Oklahoma registered positive regional shifts, indicating that in these particular industries the state received more than its proportionate share of the gains achieved nationally. These were very good years for Oklahoma manufacturing growth. Of course, some of this growth was energy related. Nevertheless, Oklahoma has increased its share of such industries as printing and publishing and rubber and plastics, neither of which are highly related to energy. Yet it remains true for Oklahoma, as for many other states, that in the 1980s most and sometimes all of the gains in manufacturing employment have been taken back.

Manufacturing industries in Oklahoma with significant employment changes in the 1974-1981 period include the following:

Selected Manufacturing Industries of Oklahoma

Industry	1981 Employment (in thousands)	Total 1974-81 Change (in thousands)	Regional Shift Component (in thousands)
Nonelectrical machinery	44.7	18.9	15.5
Transportation equipment	21.3	9.0	8.5
Fabricated metal products	25.4	6.6	5.5
Rubber & plastics	11.9	3.1	2.3
Printing & publishing	11.3	2.1	.8
Apparel & other textile products	10.7	-2.6	-1.5

It is apparent that most of these industrial employment changes were dominated by regional shifts favorable to the area. Exceptions include the printing and publishing industry and the apparel and related products industry.

Arkansas. Manufacturing in Arkansas is somewhat of an anomaly. The state enjoys one of the highest relative shares of nonagricultural employment in manufacturing in the nation, but generally ranks low in such measures of economic well-being as income per capita. It is fairly clear from even the most cursory examination that much of Arkansas' manufacturing employment is in relatively low value-added manufacturing facilities.

The manufacturing component in Arkansas has been fairly stable in both absolute and percentage terms. In the 1974-1981 analysis period, manufacturing employment increased by only 6,000 workers. These gains were largely in the nondurable goods sector, especially the food and kindred products, apparel and other textile products, and printing and publishing industries. Although the nondurable goods industries have been declining in importance nationally, Arkansas has experienced sizable gains. On the other hand, in Arkansas' durable goods sector, employment losses were recorded during the analysis period. Most notably, the industry engaged in manufacturing instruments and related products lost 4,000 workers. This industry was one of the big winners nationally, registering over a 200,000 employment gain.

The Arkansas experience suggests that gains may be achieved by acquiring a larger share of declining industries. The food processing industry is one example. Despite a much lower base of nonagricultural employment, Arkansas employs more than twice the number of workers in this industry as does Oklahoma. Arkansas' food processing industry has achieved

substantial gains in recent years, and there may be opportunities for Oklahoma in this domain.

Furthermore, there is reason to be envious of the relative stability of Arkansas' manufacturing base. However, the poor performance that Arkansas has had in several of the more high-tech type durable goods industries is not something that Oklahoma would wish to mimic. Thus, the Arkansas experience is anomalous, indeed. Further study is necessary, but it seems that added attention to nondurable goods industries may be warranted in Oklahoma.

Manufacturing industries in Arkansas with major employment changes in the 1974-1981 period include the following:

Selected Manufacturing Industries of Arkansas

Industry	1981 Employment (in thousands)	Total 1974-81 Change (in thousands)	Regional Shift Component (in thousands)
Food & kindred products	34.5	7.4	8.0
Nonelectrical machinery	14.4	3.3	1.8
Lumber & wood products	20.4	-3.1	-4.7
Furniture & fixtures	9.7	-3.6	-2.3
Textile mill products	12.2	-4.0	-1.3
Instruments & related products	10.7	-4.1	-9.1

Arkansas has experienced a mixed record of gains and losses during the analysis period. The biggest gainer was food and kindred products, where the regional shift exceeded the total employment changes. This indicates a greater share of an industry that is declining nationally. With the exception of textile mill products, the regional shift component tended to dominate.

Colorado. In Colorado, manufacturing employment rose about 40,000 workers during the 1974-1981 period. Roughly eighty percent of this increase occurred in the higher paying durable goods industries, in particular the industries involved in the production of electrical and nonelectrical machinery, transportation equipment, and miscellaneous durable goods. Gains in printing and publishing dominated the nondurable goods component. This employment growth has continued into the 1980s. Colorado is one of the few states in the region to have experienced increases in manufacturing employment between 1980 and 1986.

Manufacturing industries with significant employment changes in the 1974-1981 period include the following:

Selected Manufacturing Industries of Colorado

Industry	1981 Employment (in thousands)	Total 1974-81 Change (in thousands)	Regional Shift Component (in thousands)
Nonelectrical machinery	25.8	11.6	9.7
Miscellaneous durable goods	28.1	9.4	9.5
Electrical and electronic equipment	16.9	6.1	5.7
Printing & publishing	17.6	5.4	3.7
Transportation equipment	13.9	4.1	3.7

These data and calculations indicate the depth and breadth of Colorado's manufacturing growth in the analysis period and suggest that much of that growth has been accomplished through favorable regional shifts. Good things seem to be happening with manufacturing in Colorado, even though the pace has been slow. This state is a candidate for additional study, particularly because strong growth has occurred in the unspecified miscellaneous durable goods category. The exact nature of that growth needs to be better understood.

Kansas. Manufacturing employment in Kansas grew at a respectable rate between 1974 and 1981, but these gains were highly concentrated in transportation equipment, printing and publishing, and chemicals. Losses were marginal in this period and took place in expected industries, given national changes in industry mix. However, since 1981, manufacturing employment losses have been fairly substantial. In general, these losses have been concentrated in the durable goods industries.

The concentrated nature of manufacturing growth in Kansas leaves little to be learned from this state's experience. It is interesting to note, however, that despite high levels of employment concentration in the transportation equipment industry (better than one-fourth of the state's manufacturing employment is in this industry), Kansas has been steadily increasing its share of this industry.

Manufacturing industries in Kansas with significant employment changes in the 1974-1981 period are given in the table, "Selected Manufacturing Industries of Kansas," on the following page. Out of a total net manufacturing employment change of 19,400, approximately 12,800 were associated with employment growth in the transportation equipment industry. Much of the growth in this industry was due to regional shifts, rather than to national growth or industry mix effects. This underscores the vulnerability of the Kansas manufacturing base to a national recession or a slowdown in defense spending.

As the figures above indicate, Kansas is another state in the region showing a favorable change in printing and publishing employment. Over the 1974-1981 period, changes in this industry tended to be composed of larger shares of national, as opposed to regional shift, influences. On the other hand, changes in Kansas' chemical industry were largely attributable to regional shifts.

Louisiana. Between 1974 and 1981, this state scored respectable employment gains. Principal gains were achieved in transportation equipment, nonelectrical machinery, other durable goods, chemicals, and petroleum and coal products. Louisiana did not fare well in industries that were doing poorly nationally (a

Selected Manufacturing Industries of Kansas

Industry	1981 Employment (in thousands)	Total 1974-81 Change (in thousands)	Regional Shift Component (in thousands)
Transportation equipment	50.1	12.8	11.3
Printing & publishing	17.3	2.8	.8
Chemicals & allied products	8.8	2.0	1.7

good sign), and its gains were distributed fairly broadly.

However, Louisiana is a state, like Oklahoma, with a relatively high degree of energy-related manufacturing. Therefore, it is not surprising that the picture changed after 1981. Since that time, manufacturing employment has declined quite steeply in Louisiana, from 222,000 in 1981 to 168,000 today. As a consequence, Louisiana is currently experiencing a lower level of manufacturing employment than it had in 1970. Only one other state in the eight state region has the dubious distinction of duplicating this experience (Missouri).

Both the timing of Louisiana's decline in manufacturing employment and the rapid rate at which it occurred suggest that much of the pre-1981 growth in Louisiana was energy-related. Thus, even though there is the appearance of a degree of balance in manufacturing growth in Louisiana (with concomitant reductions in risk to economic adversity), there is little reality to it.

Manufacturing industries in Louisiana with significant employment changes in the 1974-1981 period include the following:

Selected Manufacturing Industries of Louisiana

Industry	1981 Employment (in thousands)	Total 1974-81 Change (in thousands)	Regional Shift Component (in thousands)
Transportation equipment	30.4	10.2	9.4
Nonelectrical machinery	15.8	8.1	7.1
Chemicals & allied products	33.5	6.7	5.4
Fabricated metal products	19.5	4.4	3.2
Petroleum & coal products	15.1	-4.3	3.4
Lumber & wood products	14.1	-3.7	-4.9

Louisiana experienced a total manufacturing employment change of 30,000 over the analysis period. As shown above, regional shift factors tended to dominate that growth. Of particular interest is the employment decline in the lumber and wood products industry. The regional shift value indicates that Louisiana is losing its competitive advantages in lumber and wood products production; within the region, Arkansas is also in a similar position.

Missouri. Unlike the other states under study, Missouri actually lost employment in manufacturing during the 1974-1981 period. Because it is not a major energy-producing state, Missouri did not share in the employment growth experienced by the other states during the energy-boom. Instead, its employment pattern reflected the general malaise in manufacturing nationwide. Heavy losses were sustained in Missouri's transportation equipment and other durable goods industries, and approximately 7,000 jobs were lost in fabricated metals, an industry that had favorable growth prospects nationally. Gains were achieved in printing and publishing, but at a lower rate than would be expected by national growth patterns. Electrical and electronic equipment was the only apparent bright spot in the manufacturing base. Missouri gained 5,600 jobs in this industry, with much of the gain in the form of a positive regional shift.

Manufacturing industries in Missouri with significant employment changes in the 1974-1981 period are listed in the table, "Selected Manufacturing Industries of Missouri," on the following page. During the period from 1974 to 1981, a total of 24,000 manufacturing jobs were lost in Missouri. Review of the regional shift components indicates a distinct loss of comparative advantage in fabricated metal products and transportation equipment. In printing and publishing, the employment change was positive, but the regional shift indicates that the gain was not as large as it should have been. On the other hand, the loss of jobs in leather products was due, almost entirely, to national trends. The gain in electrical and electronic equipment stands in marked contrast to other categories. Further exploration of the nature of this gain in Missouri is needed.

New Mexico. Because of the smallness of its manufacturing base and the meagerness of data reported on a detailed industry basis, this state provides little in the way of insight into potential growth opportunities. Only seven percent of nonagricultural employment is in manufacturing in New Mexico, and the principal sectors of growth have been in the unrevealing miscellaneous durables and nondurables categories. While there is little to say about the structure of manufacturing in this state, it is interesting to note that this state, Arkansas, and Colorado are the only states in the eight state region to enjoy an increase in manufacturing employment since 1981.

New Mexico gained 4,700 jobs in manufacturing during the analysis period, on a base of only 29,600 such jobs in 1974. Because of the lack of detail in reporting by industry, regional shift components are not presented. Nevertheless, it is acknowledged that most of the manufacturing employment gains are attributed to favorable regional shifts.

Texas. With a nonagricultural workforce of 6.7 million and manufacturing employment of almost one million, Texas is a potent economic force in both the regional and national economies. Although it has a diversified manufacturing base, there is some concentration in the industry engaged in producing nonelectrical machinery, including oilfield

Selected Manufacturing Industries of Missouri

Industry	1981 Employment (in thousands)	Total 1974-81 Change (in thousands)	Regional Shift Component (in thousands)
Electrical & electronic equipment	54.0	5.6	4.1
Printing & publishing	37.8	3.3	-1.5
Leather & related products	21.0	-4.4	- .3
Fabricated metal products	28.9	-7.0	-9.1
Other nondurable goods	40.8	-7.0	-4.1
Transportation equipment	59.9	-11.2	-14.0

equipment. This affected employment growth during both the oil boom and the oil bust.

Between 1974 and 1981, total manufacturing employment in Texas rose from 831,300 to 1,115,300, while employment in nonelectrical machinery doubled, climbing from 96,000 to 193,000. This increase in nonelectrical machinery employment represented about one-third of the overall manufacturing employment gain during this period. Similarly this industry was overrepresented in the recent employment declines in Texas' manufacturing sector. Since 1981, overall manufacturing employment has dropped back by somewhat less than 140,000 workers, with nonelectrical machinery workers representing 50 percent of this decline.

Despite obvious problems with energy-related manufacturing industries, the relative loss in manufacturing employment since 1981 in Texas has been substantially less than that experienced in Oklahoma. The Texas decline in manufacturing employment represents only a 12 percent loss, while Oklahoma's decline amounts to a 19 percent loss. Consequently, Texas is an important state to examine for growth opportunities even though it too, like Oklahoma, has suffered greatly from having a manufacturing base tied too strongly to energy-related goods production.

Manufacturing industries in Texas with significant employment changes in the 1974-1981 period are included in the following table, "Selected Manufacturing Industries of Texas."

In general, the employment gains over this period were dominated by a high degree of regional shift. Even in a declining industry, apparel and other textile products, Texas received a substantial regional shift. The major exception is in the instruments and related products industry where only about one-seventh of the total employment change is attributable to expanding regional competitiveness.

Selected Manufacturing Industries of Texas

Industry	1981 Employment (in thousands)	Total 1974-81 Change (in thousands)	Regional Shift Component (in thousands)
Nonelectrical machinery	193.0	96.6	84.1
Electrical & electronic equipment	104.8	36.7	36.6
Fabricated metal products	103.1	24.4	19.8
Transportation equipment	84.6	19.2	16.6
Printing & publishing	64.9	19.0	12.7
Chemicals & allied products	83.4	16.0	12.8
Primary metal industries	52.0	12.5	19.0
Other nondurable goods	34.0	12.4	10.9
Stone, clay & glass products	45.7	10.2	12.9
Food & kindred products	98.4	9.8	11.8
Instruments & related products	24.9	7.9	1.1
Lumber & wood products	37.1	4.9	2.7
Paper & allied products	22.9	4.8	5.1
Leather & leather products	10.7	4.2	5.2
Miscellaneous durable goods	13.5	2.6	6.3
Apparel & other textile products	73.8	-.5	5.2
Furniture & fixtures	16.6	-1.8	-0.1
Textile mill products	5.7	-2.2	-.9

Of course, several major national economic events have transpired since 1981. As a consequence of problems in the energy sector, nonelectrical machinery and fabricated metal products have declined as important sources of growth impulses in the Texas economy—over the last few years, these industries have accounted for a sizable proportion of the total decline in manufacturing employment. Despite these setbacks, there are a host of other industries that have fared better in Texas than in the nation. As a result, the decline in manufacturing employment in Texas has been small in comparison to Oklahoma and other states.

This analysis suggests that Oklahoma would do well to pay greater attention to the industries, say, in the upper one-half of the Texas list in terms of the potential that they offer for improved growth prospects in Oklahoma.

Conclusion

It is clear that Oklahoma's border states vary substantially in their manufacturing bases and trends in manufacturing employment (Table 1). In 1986, the manufacturing sector's share of total nonagricultural employment ranged from a high of 26.1 percent (Arkansas) to a low of 7.1 percent (New Mexico). In all states, these shares were below what they were in 1970. Despite this decline in the relative importance of manufacturing employment, the number of workers employed in manufacturing industries increased steadily in three states—Arkansas, Colorado, and New Mexico—between 1970 and 1986. In three additional states—Kansas, Oklahoma, and Texas—the 1986 manufacturing employment figures were above 1970 levels, despite declines since 1980. Only two states—Louisiana and New Mexico—experienced drops in

manufacturing employment between 1970 and 1986.

As shown in Table 1, Arkansas has a particularly sizable manufacturing base, with 26.1 percent of its nonagricultural work force employed in manufacturing. This state has shown slow but stable growth in manufacturing employment since 1970.

With 13.2 percent of its total nonagricultural labor force working in manufacturing industries, Colorado has a fairly modest manufacturing base. Colorado has made significant gains in recent years, particularly in high tech industries, and has remained on a moderately healthy growth path despite obstacles at the national level.

Kansas has 17.8 percent of its nonagricultral work force employed in manufacturing, the third highest share in the region. However, its concentrated industry structure has made its manufacturing sector especially vulnerable to national recessions and changes in defense policy. Despite substantial growth in the 1970-1980 period, manufacturing employment dropped by over 15,000 workers between 1980 and 1986.

Louisiana's manufacturing base rose and fell with the oil boom and bust. In spite of an increase in manufacturing

TABLE 1

Manufacturing Employment
Oklahoma vs. Surrounding States
1970, 1980, 1986

	Arkansas			Colorado		
	1970	1980	1986[a]	1970	1980	1986[a]
Total Nonagricultural Employment	536.2	742.3	819.3	750.2	1251.1	1442.5
Manufacturing	168.6	209.1	213.7	120.8	180.4	190.2
Percent Manufacturing	31.4	28.2	26.1	16.1	14.4	13.2
Durable Goods	87.4	112.8	113.6	NA	116.6	120.7
Percent Durable Goods	16.3	15.2	13.9	NA	9.3	8.4
Nondurable Goods	81.2	96.3	100.1	NA	63.8	69.4
Percent Nondurable Goods	15.1	13.0	12.2	NA	5.1	4.8

	Kansas			Louisiana		
	1970	1980	1986[a]	1970	1980	1986[a]
Total Nonagricultural Employment	678.8	944.7	984.4	1033.6	1578.9	1540.9
Manufacturing	137.2	190.5	175.2	179.0	214.2	167.7
Percent Manufacturing	20.2	20.2	17.8	17.3	13.6	10.9
Durable Goods	NA	122.3	104.1	NA	103.7	74.1
Percent Durable Goods	NA	12.9	10.6	NA	6.6	4.8
Nondurable Goods	NA	68.2	71.0	NA	110.5	93.6
Percent Nondurable Goods	NA	7.2	7.2	NA	7.0	6.1

	Missouri			New Mexico		
	1970	1980	1986[a]	1970	1980	1986[a]
Total Nonagricultural Employment	1668.0	1969.8	2138.2	292.6	465.4	521.9
Manufacturing	449.4	437.0	424.5	21.4	34.4	37.2
Percent Manufacturing	26.9	22.2	19.9	7.3	7.4	7.1
Durable Goods	NA	245.6	241.9	12.1	20.5	24.1
Percent Durable Goods	NA	12.5	11.3	4.1	4.4	4.6
Nondurable Goods	NA	191.4	182.6	9.4	13.8	13.1
Percent Nondurable Goods	NA	9.7	8.5	3.2	3.0	2.5

	Oklahoma			Texas		
	1970	1980	1986[a]	1970	1980	1986[a]
Total Nonagricultural Employment	762.6	1138.1	1155.6	3624.9	5851.2	6686.2
Manufacturing	134.1	191.3	162.4	734.3	1056.9	977.0
Percent Manufacturing	17.6	16.8	14.1	20.3	18.1	14.6
Durable Goods	81.1	124.3	101.0	403.0	631.6	570.8
Percent Durable Goods	10.6	10.9	8.7	11.1	10.8	8.5
Nondurable Goods	53.0	67.0	61.4	331.3	425.3	406.2
Percent Nondurable Goods	6.9	5.9	5.3	9.1	7.3	6.1

Source: U.S Department of Labor, Bureau of Labor Statistics, Series 705 data tape.

[a]1986 employment levels are averages based on the months January-September.

employment during the decade of the 1970s, total manufacturing employment is now substantially less than it was before the oil boom, and the state faces an uncertain future.

Missouri shows signs of rust belt-itis. Although almost 20 percent of its nonagricultural labor force is employed in manufacturing, total manufacturing employment has been declining slowly since 1970. The 1986 manufacturing employment level is approximately 25,000 workers below the 1970 level.

Although its manufacturing sector continues to be underdeveloped, New Mexico experienced employment growth in manufacturing between 1970 and 1986. In the 1970-1980 period, manufacturing employment grew at an average annual rate of 4.9 percent per year, while in the 1980-1986 period, growth averaged 1.3 percent per year. These rates exceeded those of any other state in the region.

Oklahoma's manufacturing employment represents about 14 percent of the state's total nonagricultural employment, which is about average for the region. Following healthy growth in manufacturing employment in the period from 1970 to 1980, Oklahoma experienced a fall in manufacturing employment during the 1980s. Between 1980 and 1986, in response to both the national recession and the drop in oil prices, Oklahoma's manufacturing employment fell at an average rate of 2.7 percent per year. However, unlike Louisiana, the size of Oklahoma's manufacturing sector did not dip below 1970 levels.

Despite having suffered like Oklahoma from the downside risk of a significant concentration of energy-related manufacturing, Texas continues to be a strong economic force in the region. During the 1980s, manufacturing employment dropped by almost 80,000 workers, at an average annual rate of 1.3 percent per year. Even with these losses, manufacturing employment in Texas in 1986 was well above the 1970 figure.

The experiences of Oklahoma, surrounding states, and the nation offer several points relevant to Oklahoma's economic development efforts. First, the analysis shows that the problems that Oklahoma is having in the manufacturing sector extend far beyond the problems associated with the state's ties to energy-related capital goods production. From an employment perspective, the national manufacturing sector is declining relative to other sectors in the U.S. economy. Undoubtedly, Oklahoma is experiencing more than its share of such problems given its link to energy production: since 1981, manufacturing employment has fallen only 5 percent nationally, compared to 20 percent in Oklahoma. However, if the national manufacturing sector begins to grow, Oklahoma should also return to a positive trend. With growth, manufacturing employment will no longer be the zero-sum game among the states that it has been for the past 10 years.

Second, the analysis indicates that many of the gains in Oklahoma and surrounding states have come via favorable regional shifts. Although a number of these gains have withered as a consequence of the energy bust, the south and southwest were leaders in economic growth in the 1970s, and many of the competitive advantages that led to this better-than-average growth remain in place today. The manufacturing industry winners nationally were, with few exceptions, the manufacturing winners in Oklahoma and surrounding states. With a turnaround in manufacturing employment nationally, Oklahoma and its neighbors can hope to experience better-than-average growth.

Third, most of the problems caused by the energy-related component of manufacturing in the region have probably been exhausted. The manufacturing base that remains can be built upon, thereby engendering economic growth and development.

Finally, it should be noted that there is much more to learn from the experiences of Oklahoma's neighbors. A study such as this is actually quite macro in its view of the economic landscape. It points out the "wheres" but not the "whys." There is need to shift from binoculars to microscopes in analyzing state economic growth trends. Much more detailed analysis will be necessary to better understand the reasons for the region's comparative successes, such as those in Colorado and Texas. With improved understanding, Oklahomans can hope to formulate and implement a public policy strategy for more rapid economic growth.

Notes

[1]All data is from U.S. Department of Labor, Bureau of Labor Statistics, Series 705 data tape.

[2]Although the manufacturing sector has been declining in terms of employment, manufacturing output has remained fairly steady over this period.

[3]See Lage & Ireland (1978) and Ireland & Moomaw (1981) for previous shift-share analyses of Oklahoma.

[4]There is extensive literature on this technique. For example, see Ashby (1964; 1968), Creamer (1943); Dunn (1960; 1980); Houston (1967); and Perloff, Dunn, Lampard, & Muth (1960).

[5]The data indicate that Arkansas, Louisiana, and Texas had slightly lower-than-average shares of rapid growth industries, while Colorado and New Mexico exhibited considerably lower-than-average shares. However, this data should be used with caution since industry detail on manufacturing employment varies by state. Industries that appear separately in national totals are frequently aggregated at the state level. Therefore, the shares may be understated.

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